

<110> Avicore Biotechnology Institute Inc.

<120> Recombinant ScFv Antibodies Specific to Eimeria spp. Responsible for Coccidiosis

<130> Avicore-USA-1

<150> KR 2001-52934

<151> 2001-08-30

<160> 40

<170> KopatentIn 1.71

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<212> DNA

<213> Artificial Sequence

<220>

<223> forward primer for PCR amplification of heavy chain variable region

<400> 1
ggaggagacg atgacttcgg t 21

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gccgtgacgt tggacgagtc c

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<400> 3

taggacggtc agggttgicc c

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<400> 4

gcgctgactc agccgtctctc g

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<400> 5
ggcggaggig gctctggcgg tggcggatcg gccgtgacgt tggacgagtc c 51

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<400> 6
ggaggagacg atgacttcgg t 21

<210> 7
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<400> 7

gcgcctgactc agccgtcctc g

21

<210> 8

<211> 51

<212> DNA

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<400> 8

agagccacct ccgcctgaac cgctccacc taggacggtc agggttgtcc c

51

<210> 9

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> reverse primer for PCR amplification of heavy chain variable region

<400> 9

gccgtgacgt tggacgagtc c

21

<210> 10

<211> 51

<212> DNA

<213> Artificial Sequence

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<400> 10

agagccacct cgcctgaac cgcctccacc ggaggagacg atgacttcgg t 51

<210> 11

<211> 51

<212> DNA

<213> Artificial Sequence

<220>

<223> reverse primer for PCR amplification of light chain variable region

<400> 11

ggcggagggtg gctctggcgg tggcggatcg gcgctgactc agcgcctctc g 51

<210> 12

<211> 21

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<213> Artificial Sequence

<220>

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<400> 12

taggacggtc agggttgtcc c 21

<210> 13
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 <213> Artificial Sequence

<220>
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<400> 13
 gtctctgcaa ctgcggccca gccgggccat gccgcgctg actcagccgt cctcg 55

<210> 14
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 <212> DNA
 <213> Artificial Sequence

<220>
 <223> forward primer for PCR amplification of scFv

<400> 14
 ggccaccttt gcggccgcgg aggagacgat gacttcggt 39

<210> 15
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 <212> DNA
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<220>
 <223> reverse primer for PCR amplification of scFv

<400> 15

gtcctcgcaa ctgcggccca gccgggccat ggccgccgtg acgttgacg agtcc

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<210> 16

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<223> forward primer for PCR amplification of scFv

<400> 16

ggccaccttt gcggcgcta ggacggtcag ggttgtccc

39

<210> 17

<211> 369

<212> DNA

<213> chicken hybridoma cell line 2-1

<220>

<221> CDS

<222> (1)..(369)

<400> 17

gcc gtg acg ttg gac gag tcc ggg ggc ggc ctc cag acg ccc gga gga
Ala Val Thr Leu Asp Glu Ser Gly Gly Gly Leu Gln Thr Pro Gly Gly

48

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10

15

gcg ctc agc ctc gtc tgc aag gcc tcc ggg ttc acc ttc agc agc cat
Ala Leu Ser Leu Val Cys Lys Ala Ser Gly Phe Thr Phe Ser Ser His

96

20

25

30

ggc atg atg tgg gtg cga cag acg ccc ggc aag ggg ctg gag tgg gtc 144
Gly Met Met Trp Val Arg Gln Thr Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

ggc ggt att agc aac act ggt act tac acg tac tac ggc cgg gcc gtg 192
Ala Gly Ile Ser Asn Thr Gly Thr Tyr Thr Tyr Tyr Ala Pro Ala Val
50 55 60

aag ggc cgt gcc acc atc tgg agg gac aac ggg cag agc aca gtg agg 240
Lys Gly Arg Ala Thr Ile Ser Arg Asp Asn Gly Gln Ser Thr Val Arg
65 70 75 80

ctg cag ctg aac aac ctc agg gct gag gac acc ggc acc tac tac tgc 288
Leu Gln Leu Asn Asn Leu Arg Ala Glu Asp Thr Gly Thr Tyr Tyr Cys
85 90 95

gcc aaa ggt ggt gct tat tgt gct ggt tgt ggt ggt gac atc gac gca 336
Ala Lys Gly Gly Ala Tyr Cys Ala Gly Cys Gly Gly Asp Ile Asp Ala
100 105 110

tgg ggc cac ggg acc gaa gtc atc gtc tcc tcc 369
Trp Gly His Gly Thr Glu Val Ile Val Ser Ser
115 120

<210> 18

<211> 123

<212> PRT

<213> chicken hybridoma cell line 2-1

<400> 18

Ala Val Thr Leu Asp Glu Ser Gly Gly Gly Leu Gln Thr Pro Gly Gly
1 5 10 15

Ala Leu Ser Leu Val Cys Lys Ala Ser Gly Phe Thr Phe Ser Ser His
20 25 30

Gly Met Met Trp Val Arg Gln Thr Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45

Ala Gly Ile Ser Asn Thr Gly Thr Tyr Thr Tyr Tyr Ala Pro Ala Val
 50 55 60

Lys Gly Arg Ala Thr Ile Ser Arg Asp Asn Gly Gln Ser Thr Val Arg
 65 70 75 80

Leu Gln Leu Asn Asn Leu Arg Ala Glu Asp Thr Gly Thr Tyr Tyr Cys
 85 90 95

Ala Lys Gly Gly Ala Tyr Cys Ala Gly Cys Gly Gly Asp Ile Asp Ala
 100 105 110

Trp Gly His Gly Thr Glu Val Ile Val Ser Ser
 115 120

<210> 19
 <211> 372
 <212> DNA
 <213> chicken hybridoma cell line 5011

<220>
 <221> CDS
 <222> (1)..(372)

<400> 19
 gcc gtg acg ttg gac gag tcc ggg ggc gcc ctc cag acg ccc gga gga 48
 Ala Val Thr Leu Asp Glu Ser Gly Gly Gly Leu Gln Thr Pro Gly Gly
 1 5 10 15

ggc ctc agc ctc gtc tgc aag gcc tcc ggg ttc gac ttc agc agt tac 96
 Ala Leu Ser Leu Val Cys Lys Ala Ser Gly Phe Asp Phe Ser Ser Tyr

	20	25	30	
	gac atg att tgg gtg cga cag gcg ccc ggc aag ggg ctg gaa tac gtc			144
	Asp Met Ile Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Tyr Val			
	35	40	45	
	gcg ggt att aga agt gat ggt agt agc ata tac tac ggg gcg gcg gtg			192
	Ala Gly Ile Arg Ser Asp Gly Ser Ser Ile Tyr Tyr Gly Ala Ala Val			
	50	55	60	
	aag ggc cgt gcc acc atc tcg agg gac aac ggg cag agc act ctg agg			240
	Lys Gly Arg Ala Thr Ile Ser Arg Asp Asn Gly Gln Ser Thr Leu Arg			
	65	70	75	80
	ctg cag ctg aac aac ctc agg gct gag gac acc ggc acc tat tac tgc			288
	Leu Gln Leu Asn Asn Leu Arg Ala Glu Asp Thr Gly Thr Tyr Tyr Cys			
	85	90	95	
	gcc aaa agt tct tat ggt agt tgg aga ggt tct act ggt gac atc gac			336
	Ala Lys Ser Ser Tyr Gly Ser Trp Arg Gly Ser Thr Gly Asp Ile Asp			
	100	105	110	
	gca tgg ggc cac ggg acc gaa gtc atc gtc tcc tcc			372
	Ala Trp Gly His Gly Thr Glu Val Ile Val Ser Ser			
	115	120		

<210> 20

<211> 124

<212> PRT

<213> chicken hybridoma cell line 5011

<400> 20

Ala Val Thr Leu Asp Glu Ser Gly Gly Gly Leu Gln Thr Pro Gly Gly

1

5

10

15

Ala Leu Ser Leu Val Cys Lys Ala Ser Gly Phe Asp Phe Ser Ser Tyr
20 25 30

Asp Met Ile Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Tyr Val
35 40 45

Ala Gly Ile Arg Ser Asp Gly Ser Ser Ile Tyr Tyr Gly Ala Ala Val
50 55 60

Lys Gly Arg Ala Thr Ile Ser Arg Asp Asn Gly Gln Ser Thr Leu Arg
65 70 75 80

Leu Gln Leu Asn Asn Leu Arg Ala Glu Asp Thr Gly Thr Tyr Tyr Cys
85 90 95

Ala Lys Ser Ser Tyr Gly Ser Trp Arg Gly Ser Thr Gly Asp Ile Asp
100 105 110

Ala Trp Gly His Gly Thr Glu Val Ile Val Ser Ser
115 120

<210> 21

<211> 372

<212> DNA

<213> chicken hybridoma cell line 13C8

<220>

<221> CDS

<222> (1)..(372)

<400> 21

gcc gtg acg ttg gac gag tcc ggg gcc gcc ctc cag acg ccc gga gga

48

Ala Val Thr Leu Asp Glu Ser Gly Gly Gly Leu Gln Thr Pro Gly Gly

1

5

10

15

ggg ctc agc ctc gtc tgc aag ggc tcc ggg ctc gac ttc agc agt tat 96
Gly Leu Ser Leu Val Cys Lys Gly Ser Gly Leu Asp Phe Ser Ser Tyr
20 25 30

gcc atg ggt tgg gtg cga cag gca ccc ggc aag ggg ctg gaa ttc gtc 144
Ala Met Gly Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Phe Val
35 40 45

gcg ggt att aaa aaa aat gat ggt agt tgg aca aac tac gcg ccg gcg 192
Ala Gly Ile Lys Lys Asn Asp Gly Ser Trp Thr Asn Tyr Ala Pro Ala
50 55 60

gtg cag ggc cgt gcc acc atc tgc agg gac aac ggg caa agc aca gtg 240
Val Gln Gly Arg Ala Thr Ile Ser Arg Asp Asn Gly Gln Ser Thr Val
65 70 75 80

agg ctg cag ctg aac aac ctc agg gct gac gac acc ggc atc tac gtc 288
Arg Leu Gln Leu Asn Asn Leu Arg Ala Asp Asp Thr Gly Ile Tyr Val
85 90 95

tgc acc aga gat gtt aat agt ggt tac cct gat gct gct gac atc gac 336
Cys Thr Arg Asp Val Asn Ser Gly Tyr Pro Asp Ala Ala Asp Ile Asp
100 105 110

gca tgg ggc cac ggg acc gaa gtc atc gtc tcc tcc 372
Ala Trp Gly His Gly Thr Glu Val Ile Val Ser Ser
115 120

<210> 22

<211> 124

<212> PRT

<213> chicken hybridoma cell line 13C8

<400> 22

Ala Val Thr Leu Asp Glu Ser Gly Gly Gly Leu Gln Thr Pro Gly Gly

1 5 10 15
 Gly Leu Ser Leu Val Cys Lys Gly Ser Gly Leu Asp Phe Ser Ser Tyr
 20 25 30
 Ala Met Gly Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Phe Val
 35 40 45
 Ala Gly Ile Lys Lys Asn Asp Gly Ser Trp Thr Asn Tyr Ala Pro Ala
 50 55 60
 Val Gln Gly Arg Ala Thr Ile Ser Arg Asp Asn Gly Gln Ser Thr Val
 65 70 75 80
 Arg Leu Gln Leu Asn Asn Leu Arg Ala Asp Asp Thr Gly Ile Tyr Val
 85 90 95
 Cys Thr Arg Asp Val Asn Ser Gly Tyr Pro Asp Ala Ala Asp Ile Asp
 100 105 110
 Ala Trp Gly His Gly Thr Glu Val Ile Val Ser Ser
 115 120

<210> 23
 <211> 375
 <212> DNA
 <213> chicken hybridoma cell line 8C3

<220>
 <221> CDS
 <222> (1)..(375)

<400> 23
 gcc gtg acg ttg gac gag tcc ggg ggc ggc ctc cag acg ccc gga gga
 Ala Val Thr Leu Asp Glu Ser Gly Gly Gly Leu Gln Thr Pro Gly Gly

48

1	5	10	15	
ggg ctc agc ctc gtc tgc aag gcc tcc ggg ttc tct atc ggc ggt tac				96
Gly Leu Ser Leu Val Cys Lys Ala Ser Gly Phe Ser Ile Gly Gly Tyr				
20	25	30		
atc atg cac tgg gtg cgc cag acg cct gga aag ggg ctg gaa tac gtt				144
Ile Met His Trp Val Arg Gln Thr Pro Gly Lys Gly Leu Glu Tyr Val				
35	40	45		
gca ggt att gat gct ggt ggt ggt agc aca tac tac ggg gcg gcg gtg				192
Ala Gly Ile Asp Ala Gly Gly Gly Ser Thr Tyr Tyr Gly Ala Ala Val				
50	55	60		
cag ggc cgt gcc acc gtc tgc agg gac aac ggg cag agc aca ctg agg				240
Gln Gly Arg Ala Thr Val Ser Arg Asp Asn Gly Gln Ser Thr Leu Arg				
65	70	75	80	
ctg cag ctg aac aac ctc agg ctg gag gac acc ggc acc tac ttc tgc				288
Leu Gln Leu Asn Asn Leu Arg Leu Glu Asp Thr Gly Thr Tyr Phe Cys				
85	90	95		
gcc aaa gct tct cgg tgt gcc tat gat tgg tgt tct gct gat aac atc				336
Ala Lys Ala Ser Arg Cys Gly Tyr Asp Trp Cys Ser Ala Asp Asn Ile				
100	105	110		
gac gca tgg ggc cac ggg acc gaa gtc atc gtc tcc tcc				375
Asp Ala Trp Gly His Gly Thr Glu Val Ile Val Ser Ser				
115	120	125		

<210> 24

<211> 125

<212> PRT

<213> chicken hybridoma cell line 8C3

<400> 24

Ala Val Thr Leu Asp Glu Ser Gly Gly Gly Leu Gln Thr Pro Gly Gly
1 5 10 15

Gly Leu Ser Leu Val Cys Lys Ala Ser Gly Phe Ser Ile Gly Gly Tyr
20 25 30

Ile Met His Trp Val Arg Gln Thr Pro Gly Lys Gly Leu Glu Tyr Val
35 40 45

Ala Gly Ile Asp Ala Gly Gly Gly Ser Thr Tyr Tyr Gly Ala Ala Val
50 55 60

Gln Gly Arg Ala Thr Val Ser Arg Asp Asn Gly Gln Ser Thr Leu Arg
65 70 75 80

Leu Gln Leu Asn Asn Leu Arg Leu Glu Asp Thr Gly Thr Tyr Phe Cys
85 90 95

Ala Lys Ala Ser Arg Cys Gly Tyr Asp Trp Cys Ser Ala Asp Asn Ile
100 105 110

Asp Ala Trp Gly His Gly Thr Glu Val Ile Val Ser Ser
115 120 125

<210> 25

<211> 324

<212> DNA

<213> chicken hybridoma cell line 2-1

<220>

<221> CDS

<222> (1)..(324)

<400> 25

gcg ctg act cag ccg tcc tog gtg tca gca aac cca gga gaa acc gtc 48
Ala Leu Thr Gln Pro Ser Ser Val Ser Ala Asn Pro Gly Glu Thr Val
1 5 10 15

aag atc acc tgc tcc ggg ggt ggc agc tac gct gga agt tac tat tat 96
Lys Ile Thr Cys Ser Gly Gly Gly Ser Tyr Ala Gly Ser Tyr Tyr Tyr
20 25 30

ggc tgg tac cag cag aag gca cct gcc agt gcc cct gtc act gtg atc 144
Gly Trp Tyr Gln Gln Lys Ala Pro Ala Ser Ala Pro Val Thr Val Ile
35 40 45

tat gac aac acc aac aga ccc tog aac atc cct tca cga ttc tcc ggt 192
Tyr Asp Asn Thr Asn Arg Pro Ser Asn Ile Pro Ser Arg Phe Ser Gly
50 55 60

tcc cta tcc ggc tcc aca aac aca tta acc atc act ggg gtc caa gtc 240
Ser Leu Ser Gly Ser Thr Asn Thr Leu Thr Ile Thr Gly Val Gln Val
65 70 75 80

gag gac gag gct gtc tat tac tgt ggg agc ttc gac agc agt tat gtt 288
Glu Asp Glu Ala Val Tyr Tyr Cys Gly Ser Phe Asp Ser Ser Tyr Val
85 90 95

ggt ata ctt ggg gcc ggg aca acc ctg acc gtc cta 324
Gly Ile Leu Gly Ala Gly Thr Thr Leu Thr Val Leu
100 105

<210> 26

<211> 108

<212> PRT

<213> chicken hybridoma cell line 2-1

<400> 26

Ala Leu Thr Gln Pro Ser Ser Val Ser Ala Asn Pro Gly Glu Thr Val

1 5 10 15
 Lys Ile Thr Cys Ser Gly Gly Gly Ser Tyr Ala Gly Ser Tyr Tyr Tyr
 20 25 30
 Gly Trp Tyr Gln Gln Lys Ala Pro Ala Ser Ala Pro Val Thr Val Ile
 35 40 45
 Tyr Asp Asn Thr Asn Arg Pro Ser Asn Ile Pro Ser Arg Phe Ser Gly
 50 55 60
 Ser Leu Ser Gly Ser Thr Asn Thr Leu Thr Ile Thr Gly Val Gln Val
 65 70 75 80
 Glu Asp Glu Ala Val Tyr Tyr Cys Gly Ser Phe Asp Ser Ser Tyr Val
 85 90 95
 Gly Ile Leu Gly Ala Gly Thr Thr Leu Thr Val Leu
 100 105
 <210> 27
 <211> 312
 <212> DNA
 <213> chicken hybridoma cell line 5D11
 <220>
 <221> CDS
 <222> (1)..(312)
 <400> 27
 gcg ctg act cag cgg tcc tgg gtg tca gca aac ctg gga gaa acc gtc 48
 Ala Leu Thr Gln Pro Ser Ser Val Ser Ala Asn Leu Gly Glu Thr Val
 1 5 10 15
 gaa atc acc tgc tcc ggg ggc agg tat agg tat ggc tgg tat cag cag 96

Glu Ile Thr Cys Ser Gly Gly Arg Tyr Arg Tyr Gly Trp Tyr Gln Gln
20 25 30

aag tca tct ggc agt gcc cct gtc act gtg atc tat gac aac gac aag 144
Lys Ser Ser Gly Ser Ala Pro Val Thr Val Ile Tyr Asp Asn Asp Lys
35 40 45

aga ccc tcg gac atc cct tca cga ttc tcc ggt tcc aaa tcc gac tcc 192
Arg Pro Ser Asp Ile Pro Ser Arg Phe Ser Gly Ser Lys Ser Asp Ser
50 55 60

acg ggc aca tta acc atc act ggg gtc caa gcc gag gac gag gct gtc 240
Thr Gly Thr Leu Thr Ile Thr Gly Val Gln Ala Glu Asp Glu Ala Val
65 70 75 80

tat tac tgt ggg aat gca gac aac aat act tac gat cct ata ttt ggg 288
Tyr Tyr Cys Gly Asn Ala Asp Asn Asn Thr Tyr Asp Pro Ile Phe Gly
85 90 95

gcc ggg aca acc ctg acc gtc cta 312
Ala Gly Thr Thr Leu Thr Val Leu
100

<210> 28

<211> 104

<212> PRT

<213> chicken hybridoma cell line 5D11

<400> 28

Ala Leu Thr Gln Pro Ser Ser Val Ser Ala Asn Leu Gly Glu Thr Val
1 5 10 15

Glu Ile Thr Cys Ser Gly Gly Arg Tyr Arg Tyr Gly Trp Tyr Gln Gln
20 25 30

Lys Ser Ser Gly Ser Ala Pro Val Thr Val Ile Tyr Asp Asn Asp Lys
35 40 45

Arg Pro Ser Asp Ile Pro Ser Arg Phe Ser Gly Ser Lys Ser Asp Ser
50 55 60

Thr Gly Thr Leu Thr Ile Thr Gly Val Gln Ala Glu Asp Glu Ala Val
65 70 75 80

Tyr Tyr Cys Gly Asn Ala Asp Asn Asn Thr Tyr Asp Pro Ile Phe Gly
85 90 95

Ala Gly Thr Thr Leu Thr Val Leu
100

<210> 29

<211> 324

<212> DNA

<213> chicken hybridoma cell line 13C8

<220>

<221> CDS

<222> (1)..(324)

<400> 29

gcg ctg act cag ccg tcc tgg gtg tca gca aac ctg gga gga acc gtc 48

Ala Leu Thr Gln Pro Ser Ser Val Ser Ala Asn Leu Gly Gly Thr Val

1 5 10 15

aag atc acc tgc tcc ggg ggc agc tat ggc tat ggc tgg ttc cag cag 96

Lys Ile Thr Cys Ser Gly Gly Ser Tyr Gly Tyr Gly Trp Phe Gln Gln

20 25 30

aag tca cct ggc agt gcc cct gtc cct gtg atc tac tgg aac aac aag 144

Lys Ser Pro Gly Ser Ala Pro Val Pro Val Ile Tyr Trp Asn Asn Lys

35

40

45

aga ccc tgg gac atc cct tca cga ttc tcc ggt tcc aaa tcc ggc tcc 192
 Arg Pro Ser Asp Ile Pro Ser Arg Phe Ser Gly Ser Lys Ser Gly Ser
 50 55 60

aca gcc aca tta acc atc act ggg gtc cga gcc gag gac gag gct gtc 240
 Thr Ala Thr Leu Thr Ile Thr Gly Val Arg Ala Glu Asp Glu Ala Val
 65 70 75 80

tat tac tgt ggg aat gca gac agc aat act gct gat agt gat tat gtt 288
 Tyr Tyr Cys Gly Asn Ala Asp Ser Asn Thr Ala Asp Ser Asp Tyr Val
 85 90 95

ggg ata ttt ggg gcc ggg aca acc ctg acc gtc cta 324
 Gly Ile Phe Gly Ala Gly Thr Thr Leu Thr Val Leu
 100 105

<210> 30

<211> 108

<212> PRT

<213> chicken hybridoma cell line 13C8

<400> 30

Ala Leu Thr Gln Pro Ser Ser Val Ser Ala Asn Leu Gly Gly Thr Val
 1 5 10 15

Lys Ile Thr Cys Ser Gly Gly Ser Tyr Gly Tyr Gly Trp Phe Gln Gln
 20 25 30

Lys Ser Pro Gly Ser Ala Pro Val Pro Val Ile Tyr Trp Asn Asn Lys
 35 40 45

Arg Pro Ser Asp Ile Pro Ser Arg Phe Ser Gly Ser Lys Ser Gly Ser
 50 55 60

Thr Ala Thr Leu Thr Ile Thr Gly Val Arg Ala Glu Asp Glu Ala Val
65 70 75 80

Tyr Tyr Cys Gly Asn Ala Asp Ser Asn Thr Ala Asp Ser Asp Tyr Val
85 90 95

Gly Ile Phe Gly Ala Gly Thr Thr Leu Thr Val Leu
100 105

<210> 31
<211> 315
<212> DNA
<213> chicken hybridoma cell line 8C3

<220>
<221> CDS
<222> (1)..(315)

<400> 31
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Ala Leu Thr Gln Pro Ser Ser Val Ser Ala Ile Pro Gly Glu Thr Val
1 5 10 15

gag atc acc tgc tcc ggg ggt aac aac tac tat ggc tgg tat cag cag 96
Glu Ile Thr Cys Ser Gly Gly Asn Asn Tyr Tyr Gly Trp Tyr Gln Gln
20 25 30

aaa tca cct gcc agt gcc cct gtc act gtg atc tac tac aac aac aag 144
Lys Ser Pro Gly Ser Ala Pro Val Thr Val Ile Tyr Tyr Asn Asn Lys
35 40 45

aga ccc tgg gac atc cct tca cga ttc tcc ggt tcc aaa ccc gcc tcc 192
Arg Pro Ser Asp Ile Pro Ser Arg Phe Ser Gly Ser Lys Pro Gly Ser
50 55 60

aca aac aca tta acc atc act ggg gtc cga gcc gag gac gag gct gtc 240
 Thr Asn Thr Leu Thr Ile Thr Gly Val Arg Ala Glu Asp Glu Ala Val
 65 70 75 80

tat ttc tgt ggt gcc tgg gaa agt agt cct att tat gtt ggt ata ttt 288
 Tyr Phe Cys Gly Ala Trp Glu Ser Ser Pro Ile Tyr Val Gly Ile Phe
 85 90 95

ggg gcc ggg aca acc ctg acc gtc cta 315
 Gly Ala Gly Thr Thr Leu Thr Val Leu
 100 105

<210> 32

<211> 105

<212> PRT

<213> chicken hybridoma cell line 8C3

<400> 32

Ala Leu Thr Gln Pro Ser Ser Val Ser Ala Ile Pro Gly Glu Thr Val
 1 5 10 15

Glu Ile Thr Cys Ser Gly Gly Asn Asn Tyr Tyr Gly Trp Tyr Gln Gln
 20 25 30

Lys Ser Pro Gly Ser Ala Pro Val Thr Val Ile Tyr Tyr Asn Asn Lys
 35 40 45

Arg Pro Ser Asp Ile Pro Ser Arg Phe Ser Gly Ser Lys Pro Gly Ser
 50 55 60

Thr Asn Thr Leu Thr Ile Thr Gly Val Arg Ala Glu Asp Glu Ala Val
 65 70 75 80

Tyr Phe Cys Gly Ala Trp Glu Ser Ser Pro Ile Tyr Val Gly Ile Phe

Gly Ala Gly Thr Thr Leu Thr Val Leu
 100 105

<210> 33
 <211> 7
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> reverse primer for PCR amplification of heavy chain variable
 region

<400> 33
 Ala Val Thr Leu Asp Glu Ser
 1 5

<210> 34
 <211> 7
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 <213> Artificial Sequence

<220>
 <223> forward primer for PCR amplification of heavy chain variable
 region

<400> 34
 Ser Ser Val Ile Val Glu Thr
 1 5

<210> 35
 <211> 7
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> reverse primer for PCR amplification of light chain variable region

<400> 35
 Ala Leu Thr Gln Pro Ser Ser
 1 5

<210> 36
 <211> 7
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> forward primer for PCR amplification of light chain variable region

<400> 36
 Leu Val Thr Leu Thr Thr Gly
 1 5

<210> 37
 <211> 381
 <212> DNA
 <213> chicken hybridoma cell line 6D-12-G10

<220>

<221> CDS

<222> (1)..(381)

<400> 37

gcc gtg acg ttg gac gag tcc ggg ggc ggc ctc cag acg ccc gga aga 48

Ala Val Thr Leu Asp Glu Ser Gly Gly Gly Leu Gln Thr Pro Gly Arg

1 5 10 15

gcg ctc agc ctc gtc tgc aag gcc tcc ggg ttc acc ttc agc agt tat 96

Ala Leu Ser Leu Val Cys Lys Ala Ser Gly Phe Thr Phe Ser Ser Tyr

20 25 30

ggc atg gtc tgg gtg cga cag gcg ccc ggc aag ggg ctg gaa tac gtc 144

Gly Met Val Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Tyr Val

35 40 45

gct gaa att atc aca act ggt aga gac aca tgg tat ggg acg gcg gtg 192

Ala Glu Ile Ile Thr Thr Gly Arg Asp Thr Trp Tyr Gly Thr Ala Val

50 55 60

aag ggc cgt gcc acc atc tcg agg gac aac ggg cag agt aca gtg agg 240

Lys Gly Arg Ala Thr Ile Ser Arg Asp Asn Gly Gln Ser Thr Val Arg

65 70 75 80

ctg cag ctg aac aac ctc agg gct gaa gac acc ggc atc tac tac tgc 288

Leu Gln Leu Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr Tyr Cys

85 90 95

gcc aaa tgc agt tat gag tgt act agt agt tgt tgg ggt tat act gat 336

Ala Lys Cys Ser Tyr Glu Cys Thr Ser Ser Cys Trp Gly Tyr Thr Asp

100 105 110

atg atc gac gca tgg ggc cac ggg acc gaa gtc atc gtc tcc tcc 381

Met Ile Asp Ala Trp Gly His Gly Thr Glu Val Ile Val Ser Ser

115 120 125

<210> 38

<211> 127

<212> PRT

<213> chicken hybridoma cell line 6D-12-G10

<400> 38

Ala Val Thr Leu Asp Glu Ser Gly Gly Gly Leu Gln Thr Pro Gly Arg

1 5 10 15

Ala Leu Ser Leu Val Cys Lys Ala Ser Gly Phe Thr Phe Ser Ser Tyr

20 25 30

Gly Met Val Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Tyr Val

35 40 45

Ala Glu Ile Ile Thr Thr Gly Arg Asp Thr Trp Tyr Gly Thr Ala Val

50 55 60

Lys Gly Arg Ala Thr Ile Ser Arg Asp Asn Gly Gln Ser Thr Val Arg

65 70 75 80

Leu Gln Leu Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr Tyr Cys

85 90 95

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Lys Ile Thr Cys Ser Gly Ser Ser Gly Ser Tyr Gly Trp Tyr Gln Gln
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Lys Ser Pro Gly Ser Ala Pro Val Thr Val Ile Tyr Tyr Asn Asp Lys
35 40 45

aga ccc tgg gac atc cct tca cga ttc tcc ggt tcc aaa tcc ggc tcc 192
Arg Pro Ser Asp Ile Pro Ser Arg Phe Ser Gly Ser Lys Ser Gly Ser
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acg ggc aca tta acc atc act ggg gtc caa gcc gag gac gag gct gtc 240
Thr Gly Thr Leu Thr Ile Thr Gly Val Gln Ala Glu Asp Glu Ala Val
65 70 75 80

tat ttc tgt gag agt aca gac tac agt agt act gat ata ttt ggg gcc 288
Tyr Phe Cys Glu Ser Thr Asp Tyr Ser Ser Thr Asp Ile Phe Gly Ala
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Lys Ile Thr Cys Ser Gly Ser Ser Gly Ser Tyr Gly Trp Tyr Gln Gln

20 25 30

Lys Ser Pro Gly Ser Ala Pro Val Thr Val Ile Tyr Tyr Asn Asp Lys

35 40 45

Arg Pro Ser Asp Ile Pro Ser Arg Phe Ser Gly Ser Lys Ser Gly Ser

50 55 60

Thr Gly Thr Leu Thr Ile Thr Gly Val Gln Ala Glu Asp Glu Ala Val

65 70 75 80

Tyr Phe Cys Glu Ser Thr Asp Tyr Ser Ser Thr Asp Ile Phe Gly Ala

85 90 95

Gly Thr Thr Leu Thr Val Leu Gly

100